



# User Manual

## Toucan series

Professional Video Servers

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**ANEVIA web site :** <http://www.anevia.com>



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# Revision history

Issue	Date	Author	HW rev	SW rev	Comments
<b>1.0</b>	2007-09-26	DA	1.0	1.4.6	Initial Release
<b>2.0</b>	2008-11-24	DA	3.0	2.1.2	New HW Update
<b>2.1</b>	2009-01-07	SV	3.0	2.1.2	New RAID configuration (4+6)
<b>3.0</b>	2009-11-02	DA	3.0	2.2.2	Add circular buffer, playlists, session profile and security options
<b>3.1</b>	2009-11-19	DA	3.0	2.2.2	Update upgrade process
<b>3.2</b>	2010-02-16	DA	3.0	2.2.3	Update RAID configuration section
<b>3.3</b>	2010-03-05	DA	3.0	2.2.5	Update schedule cleaning section and add warnings about bonding usage
<b>3.4</b>	2010-03-22	DA	3.0	2.3.0	Update web interface captures
<b>3.5</b>	2010-09-20	DA	3.0	2.4.2	Add fallback stream support
<b>4.0.0</b>	2011-06-21	SGR	--	3.0.2	Total overhaul of the document for 3.0 release
<b>4.0.1</b>	2011-06-27	SGR	--	3.0.3	Update according to SAB comments
<b>4.1.0</b>	2011-09-28	SGR	--	3.1.1	Update for 3.1 version
<b>4.1.1</b>	2011-09-30	SGR	--	3.1.1	Update according to SAB comments
<b>4.1.2</b>	2011-10-03	SGR	--	3.1.1	Adding settings clear procedure Adding naming rule for SR and CB
<b>4.1.3</b>	2011-10-11	MHO & SGR	--	3.1.1	Grammar fixes Fixing Scheduling cleanings part
<b>4.1.4</b>	<b>2011-12-05</b>	<b>SGR</b>	<b>--</b>	<b>3.1.2</b>	<b>Adding <i>Getting started</i> section</b> <b>Updating <i>Multiscreen option</i> chapter</b> <b>Adding a warning on playlist PID</b>



## Scope of the document and warnings

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*This document has been written for the Toucan 3.1.x series. Screenshots have been made with version 3.1.1. Although there should be no major user interface changes between 3.1.x versions, there might be some minor differences between a newer version and the screenshots in this document.*



# Using a Toucan

The Toucan product is a video server designed to deploy nPVR, VOD, Catchup TV, and time-shifting services.

The Toucan server is able to manage video streams with CBR or VBR compression, MPEG-2 or MPEG-4/H.264 encoding and SD or HD resolutions. These streams **must** be encapsulated in MPEG2 Transport Stream protocol.

## Limitations

The Toucan series products are able to manage up to 10 Ethernet interfaces.

**The Toucan video server does not provide transcoding or transrating facilities.**

## Connecting to a Toucan

Toucan series have two connection interfaces used for management: an RS 232 port and an Ethernet port. For more information about the connectors, please refer to the hardware manual.

### RS 232

Some hardware equipment is provided with a RS-232 port. To connect to the COM port of the equipment, the following configuration for the serial port is required:

<b>Speed: 38400 bps</b>
<b>Parity: None</b>
<b>Data: 8 bits</b>
<b>Stop bits: 1</b>

Figure 1 – RS232 connection parameters

After entering all these parameters, the connection is opened as described in the command line interface section.

### VGA & USB interfaces

Some hardware equipment is provided with a VGA connector and USB connectors, you can then connect a screen to the VGA port and a keyboard to a USB port. Then the Toucan can be managed by the command line interface available as described in the relevant section.

### Ethernet interfaces

Depending on the hardware configuration, the Toucan has several network interface cards. The interface cards are named lan1 to lanx where x is the number of Ethernet interfaces of the equipment. The different interfaces can be configured to dispatch outgoing streams for load balancing or for backup purposes.

Once the Toucan IP address is set, it is possible to connect through the Ethernet port of the machine either using the Web interface or the on-line command prompt (see command line interface section for more information).

The command line interface through the Ethernet port is only accessible through an SSH connection. We recommend using the PuTTY software<sup>1</sup> to connect to a Toucan series through this interface.

<sup>1</sup> <http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html>



## Getting started with Toucan

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Once the installation process of the Toucan is done, the steps above can be followed to begin to use it for the first time in a quick way.

- Installing the hard disks
  - **SYSTEM PAGES – DISKS CONFIGURATION > DISK MANAGEMENT** – p.27
- Setting the RTSP path of the disks
  - **SYSTEM PAGES – DISKS CONFIGURATION > DISKS / RTSP** – p.28
- Uploading the VoD files through FTP and getting the links to the files for using them in players
  - **SERVICES PAGES > VOD CONTENTS** – p.31
- Saving the current configuration
  - **SYSTEM PAGES – TOUCAN CONFIGURATION > CONFIGURATION** – p.21



# System & Content parameters

The Toucan configuration is made up of different parameters.

Some of the parameters reside within the system layer, others within the content layer.

The content layer parameters can be saved inside given “configurations”. Those configurations can be loaded later on. Changes in the content layer parameters need to be saved.

The system layer parameters can only be cleared or modified but not saved in alternate configurations. Changes in the system layer parameters are automatically saved.

Here is the list of the different parameters:

Parameter	System	Content
Services/Sched. Record	X	
Services/Sched. Play	X	
Services/Sched. Cleanings	X	
Services/Sched. Options	X	
Services/Circular Buffers		X
Services/Circular Buffers Channels		X
Services/Playlists		X
System/Network	X	
System/Firewall	X	
System/Authentication	X	
System/Logs	X	
System/Alarm	X	
System/Time	X	
System/License	X	
System/Disks / RTSP	X	X
System/Disks Management	X	
System/RAID	X	
System/RTSP		X





# Web Interface

## Notes on general interface behaviour

### Dynamic display of pages

Most of the pages are dynamically built, and any change to the equipment will automatically be displayed. The user does not need to reload the page.

### Help notes & tips

Next to each parameter a small box is displayed with a short help message identified by the  sign.

### Changing configuration fields values

Changing a configuration field value is usually done by changing the value in a control section (text box, drop down box, check box ...) and clicking on the “apply” button.

In case of success, a confirmation message will be displayed at the top of the page.

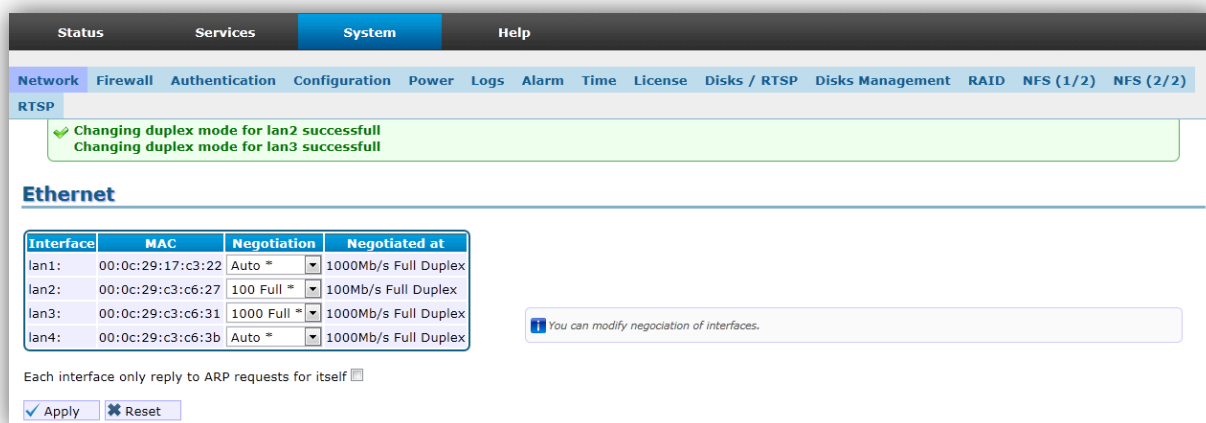


Figure 2 - Changing a parameter - confirmation

In case of failure, an error message will be displayed at the top of the page.

A pop-up may also warn the user regarding a potential error.

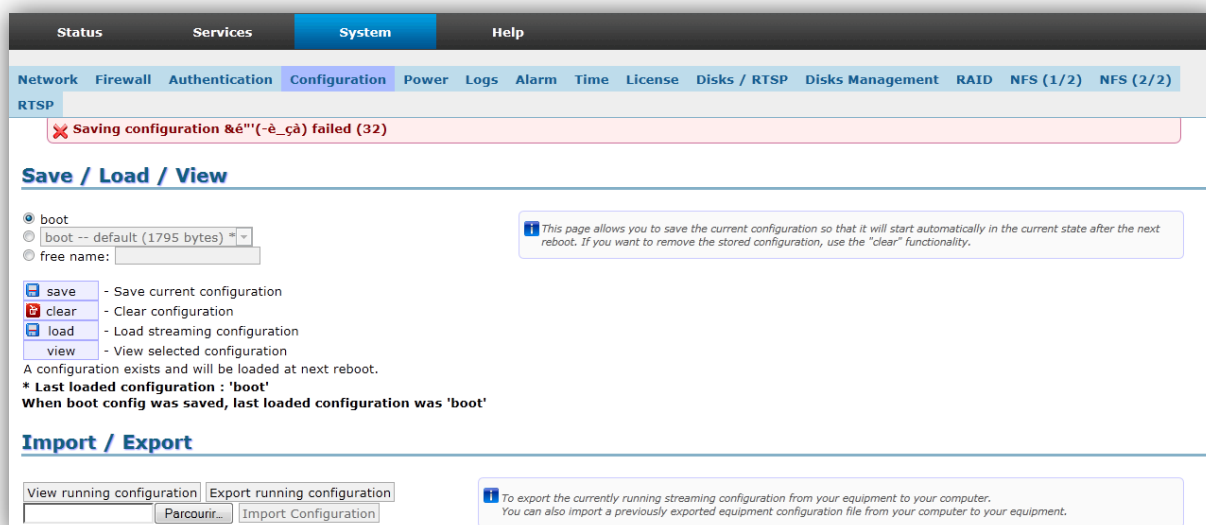


Figure 3 - Changing a parameter - failure



## Toucan 3.1 menus

The web interface site map is described here:

Main Menu	Sub Menu	Functionality
Status	<b>Status pages of the equipment</b>	
	Overview	Overview of the equipment configuration
	Log	View of the logs
	Alarms	Display active and past alarms
	CPU Graph	Time graph monitoring the CPU load
	Memory Graph	Time graph monitoring the RAM load
	Load Average Graph	Time graph monitoring the system load average
	Session Graph	Time graph monitoring the running sessions
	Net Graph	Time graph monitoring the incoming and outgoing network traffic
Services	<b>Configuration of the services</b>	
	VOD Contents	View of the stored video contents and circular buffers fragments on the disks
	Sched. Record	Configuration of scheduled channel recordings on the Toucan disks
	Sched. Play	Configuration of video scheduled play
	Sched. Cleanings	View of scheduled cleanings
	Sched. Options	Configuration of scheduling options
	Circular Buffers	Configuration of circular buffers
	Circular Buffers Channels	View of circular buffers channels
	Playlists	Configuration of playlists
	OTT	Configuration of OTT VOD
	Middleware	Configuration of Minerva middleware connector
	RTSP	Configuration of RTSP parameters
System	<b>System configuration</b>	
	Network	Parameters for all network configuration (including Ethernet, ip, dns, ...)
	Firewall	Configuration of the embedded firewall
	Authentication	Configuration of the passwords, and secured access
	Configuration	Managing the saved configurations files
	Power	Ability to reboot and shutdown the equipment
	Logs	Configuration of the log parameters (including external log server and persistent logs)
	Alarm	Configuration of the alarms thresholds and SNMP
	Time	Configuration of the date/time of the equipment, including NTP server
	License	Managing licenses loaded on the equipment
	Disks / RTSP	Configuration of the disks RTSP paths
	Disks Management	Managing the disks and the partitions
Help	<b>General information about the Toucan</b>	
	About	About Anevia
	Version	Display running firmware version, ability to upgrade the equipment



	<b>Uptime</b>	Display system uptime
	<b>Support</b>	Information on reaching support team
	<b>Remote Access</b>	Let the support team remotely access the Toucan

Figure 4 - Toucan 3.1 Web Interface menus

## Login and password

There are two levels of privileges:

**Monitor** - read-only access to the configuration parameters

**Admin**- full control

User *monitors* can access the command line interface through SSH or through the serial port. They can also access a restricted number of functionalities through the Web interface.

Login	Default password
monitor	<b>anevia</b>
admin	<b>paris</b>

Figure 5 - Default logins &amp; passwords

## Accessing the web interface



The web interface is designed to work with Internet Explorer (8.0 or higher), Firefox (1.5 or higher) and Chrome.

For all other browsers like Opera, Safari, etc. compatibility is not guaranteed.

Using a web browser, the user must connect to the web interface of the equipment through this address: [http://IP\\_address/](http://IP_address/) where *IP\_address* is the selected address entered in the setup menu.

If the user has correctly filled the net mask and the gateway address fields, a page should be displayed with a prompt to enter the administration account login & password.



Figure 6 - Login page

Once connected, the main administration web page of the Toucan is displayed.



## Status pages

### Overview page

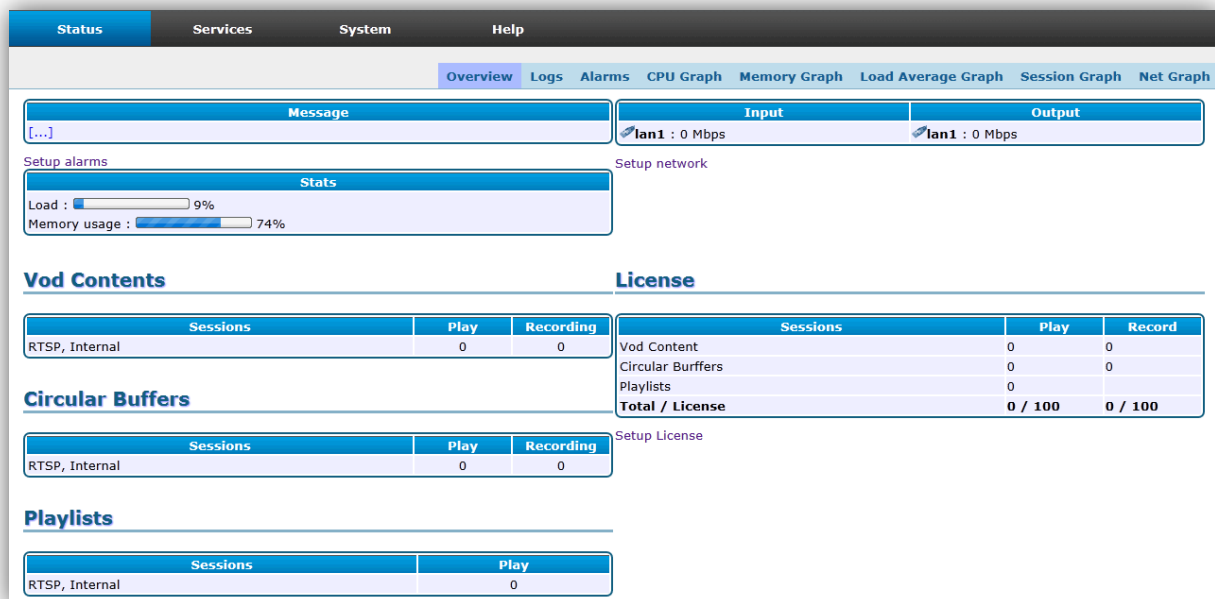


Figure 7 - Web interface Status page

The main web interface page is designed in order to provide a quick overview of the equipment.

All the important parameters are displayed on this page. This includes:

- Any active alarms
- Statistics on system load and memory usage
- Streaming bitrate of each interface
- Current use of license resources



## Logs page

**Logs manipulations**

Download logs Download full debug information Clear logs

**Logs info**

Page 1 (2011-09-12 12:52:08)


Date	Message
2011-09-12 12:52:08	Logging system initialized
2011-09-12 12:52:09	closing all sessions for this module
2011-09-12 12:52:09	last message repeated 4 times
2011-09-12 12:52:26	manager pid=3953 is now started and ready
2011-09-12 12:52:35	closing all sessions for this module
2011-09-12 12:52:35	input [Disk number 1([Toucan streamer 172.27.99.239:4242])] state is DEVICE_OK
2011-09-12 12:52:35	input [Disk number 2([Toucan streamer 172.27.99.239:4242])] state is DEVICE_OK
2011-09-12 12:52:35	input [Disk number 1([Toucan streamer 172.27.99.245:4242])] state is DEVICE_OK
2011-09-12 12:52:35	input [Disk number 2([Toucan streamer 172.27.99.245:4242])] state is DEVICE_OK
2011-09-12 12:52:35	input [Disk number 3([Toucan streamer 172.27.99.245:4242])] state is DEVICE_OK
2011-09-12 12:52:36	last message repeated 2 times
2011-09-12 12:52:36	boot config loaded
2011-09-12 12:53:26	closing all sessions for this module
2011-09-12 12:53:27	last message repeated 2 times
2011-09-12 12:53:54	closing all sessions for this module
2011-09-12 12:54:40	closing all sessions for this module

Figure 8 - Web interface log page

All the messages generated by the Toucan are displayed in this section. These messages are classed into three categories and can be displayed separately:


- **Information:** Information messages describing a normal behavior.
- **Warning:** Messages describing recoverable errors, the system is still running but the service can be stopped.
- **Error:** Messages describing blocking errors, the system needs to be analyzed.

The latter generally includes critical errors and the user should contact us or their local distributor for further investigation.

The selection of the display on the Log page can be modified by clicking on one of these buttons  symbolising in respective order: information, warning, and error messages.

The logs can be downloaded as a file to be displayed on a PC using a text editor.

The **Download full debug information** button in the logs page enables the user to download the full debug information (FDI). This FDI may be requested by the support team for troubleshooting. They can also be used with the Anevia online troubleshooting tool available on the support website.

The button  enables the user to choose the sort order for the logs.

The user can navigate in the different log pages using the different arrows and the drop box.



## Alarms page

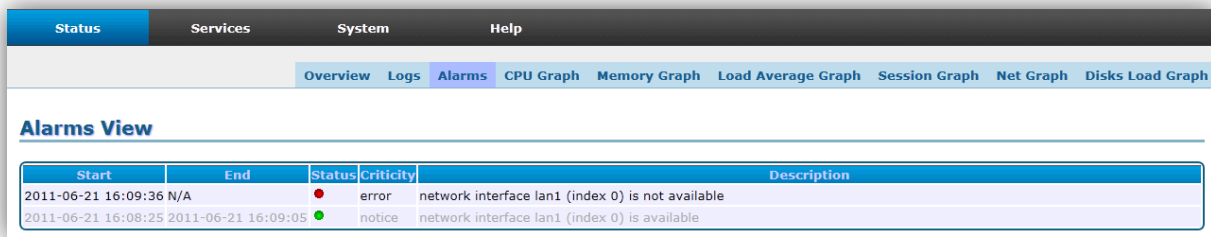


Figure 9 - Web interface alarms page

On this page, current and past alarms are displayed. The red bullet with criticality error shows that there is an ongoing alarm. The green bullet with **notice** criticality shows that an alarm has been raised and then cancelled.

## Graphs

Graphs are divided into 5 different pages with one graph each. For each graph, the time scale can be changed according to needs.

- **Bihourly**: 2-hour time basis
- **Daily**: 24-hour time basis
- **Weekly**: 7-day time basis
- **Monthly**: 30-day time basis
- **All**: Displays the all four graphs described before on the same page

Here are the five graph types available (shown in **bihourly** display):

The CPU graph monitors on a time basis the CPU load for each available processor in terms of percentage.

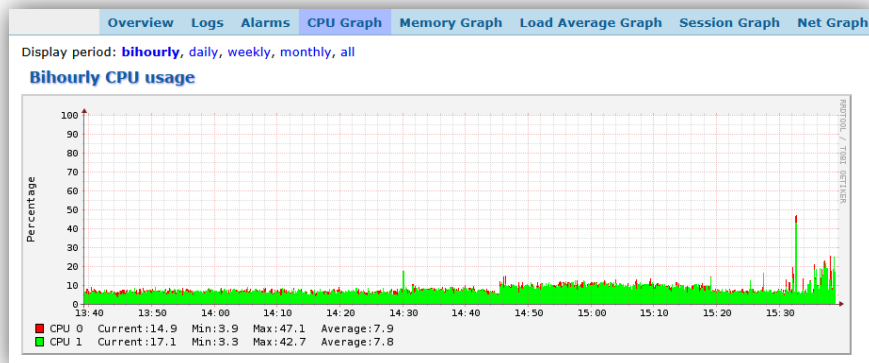


Figure 10 – CPU graph

The Memory graph monitors the amount of memory currently used. It is shown in kilobytes.

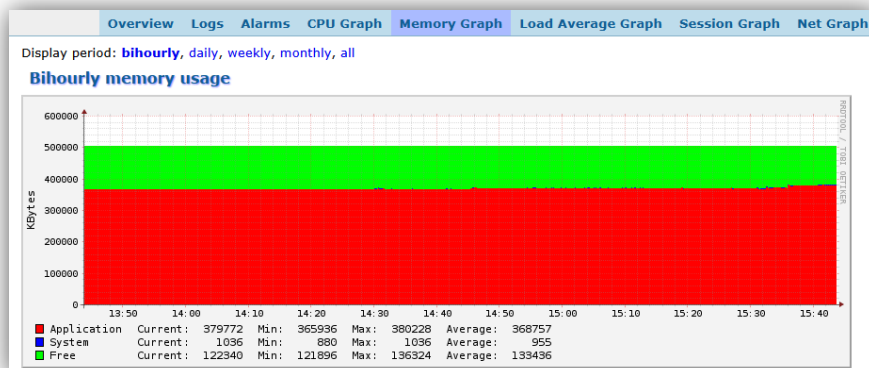


Figure 11 – Memory graph



The Load Average graph monitors the Linux standard system load average. Three graphs are represented with 1 minute, 5 minutes and 15 minutes means. In a normal situation, this load average should be equal to the number of server processors (1 for a mono-processor, 2 for a bi-processor, ...).

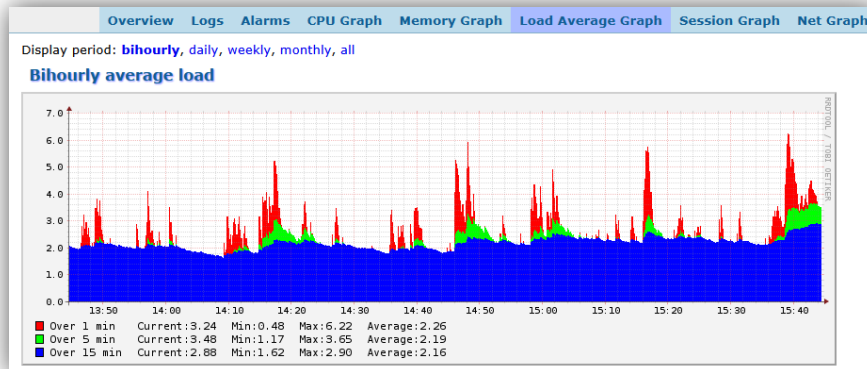


Figure 12 – Load Average graph

The Session graph monitors the number of active sessions (plays and records sessions).

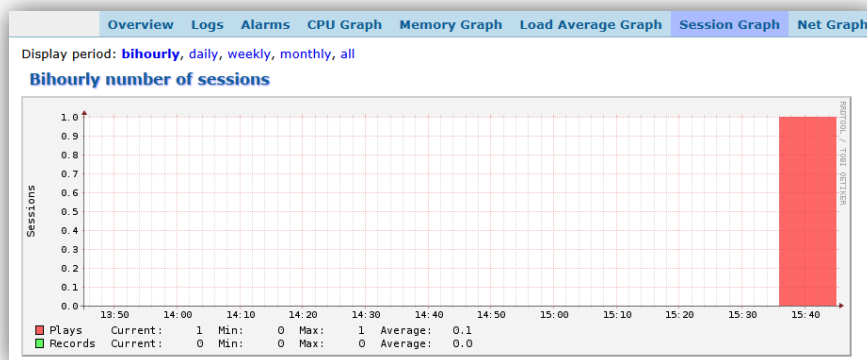


Figure 13 – Session graph

The Net graph monitors the incoming and the outgoing network traffic on the server. This is reported in Mbit/s.

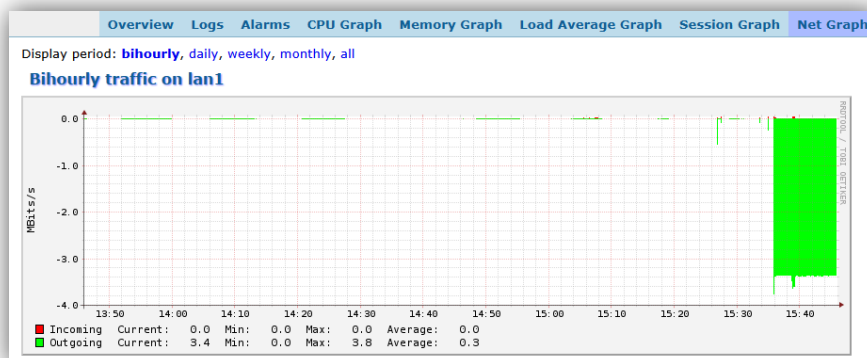


Figure 14 – Net graph



## System pages – Toucan configuration

All system parameters are accessible through the system menu.

Configuration of those system parameters should be done prior to any streaming configuration settings in order to ensure proper operation of the system.

### Network configuration

#### Ethernet settings

The screenshot shows the 'Ethernet' settings page. It features a table with columns: Interface, MAC, Negotiation, and Negotiated at. The table lists two interfaces: lan1 and lan2, both with MAC addresses starting with 00:0c:29:c3 and set to 'Auto \*' negotiation mode, resulting in '1000Mb/s Full Duplex'. Below the table, there is a checkbox labeled 'Each interface only reply to ARP requests for itself' which is currently unchecked. At the bottom, there are 'Apply' and 'Reset' buttons. A blue information box on the right states: 'You can modify negotiation of interfaces.'

Interface	MAC	Negotiation	Negotiated at
lan1:	00:0c:29:17:c3:22	Auto *	1000Mb/s Full Duplex
lan2:	00:0c:29:c3:c6:27	Auto *	1000Mb/s Full Duplex

Each interface only reply to ARP requests for itself ☐

*You can modify negotiation of interfaces.*

Figure 15 - Ethernet settings

In the Ethernet settings paragraph, the different physical interfaces on the equipment are displayed. The user can configure the negotiation mode.

The check box “each interface only reply to ARP request for itself” has the following behavior:

**Checked** – if an ARP request for the IP address of interface X comes to the Toucan through interface Y, no reply is sent.

**Unchecked** – if an ARP request for the IP address of interface X comes to the Toucan through interface Y, a reply is sent defining IP\_X is at MAC\_Y.

#### IP address

The screenshot shows the 'IP Address' settings page. It features a table with columns: Interface, DHCP, IP, and Netmask. The table lists two interfaces: lan1 and lan2, both with DHCP checked, IP addresses 172.27.99.220 and 172.27.99.210, and netmasks 255.255.255.0. Below the table, there is a 'Gateway' field set to 172.27.99.254. At the bottom, there are 'Apply' and 'Reset' buttons. A blue information box on the right states: 'You can modify ip, if you leave empty 'gateway' the system use the default gateway from the first interface.'

Interface	DHCP	IP	Netmask
lan1:	<input checked="" type="checkbox"/>	172.27.99.220	255.255.255.0
lan2:	<input checked="" type="checkbox"/>	172.27.99.210	255.255.255.0

Gateway: 172.27.99.254

*You can modify ip, if you leave empty 'gateway' the system use the default gateway from the first interface.*

Figure 16 - IP address settings

The IP address fields enable the user to setup the IP address for any interface on the equipment, this includes physical interface and any logical interface (vlan tagged, bonding, ...). Optionally, the user can set the interface as a DHCP client.

When a bonded interface is used, it is advised not to put any IP address from the slave interfaces (the interfaces from which the bonded interface relies).

The user is asked to fill the netmask as well and an implicit route is created automatically for that subnet using that interface.

The gateway can be set here or in the route section on the default route.





## Routes

Destination	Interface	Gateway	Metric	Actions
default	Mgmt	172.27.119.254	0	

☐ Apply

*You can modify default route, and add custom routes.*

Figure 17 - Route settings

This section enables the user to create specific routes.

The default route has to be present on the equipment. The user can define the gateway and the interface. The user can add any route on any kind of interface.

## DNS

Hostname:

DNS Primary server:

DNS Secondary server:

DNS Domain:

☐ Apply

*You can modify hostname. You can also modify dns servers, to use fqdn instead of IP.*

Figure 18 - DNS Settings

In this section, the user can define the hostname of the equipment.

The user can also define the IP addresses of the DNS servers and specify a DNS domain search.

This will enable the definition of given parameters as DNS rather than IP.

## Bonding

Name	lan1	lan2	lan3	lan4	Mode	Actions
bond1	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Backup *	<input type="button" value="update"/> <input type="button" value="remove"/>
bond	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Backup	<input type="button" value="new"/>

☐ Apply

*You can add and modify bonding. You can not set vlan on bonded interfaces, and vice versa.*

Figure 19 - Bonding settings

The user can create bonded interfaces. Each lan interface can be used for bonding.

Different kinds of bonding are available:

- **Backup:** The second lan interface is configured as a backup interface of of the first lan interface, if this latter breaks out, the second interface takes over using the bond address for both.
- **Broadcast:** All Ethernet interfaces multicast the same streams, if one connection is down, the output signal can be taken on any other interface.
- **TLB:** The output bit rate is dispatched between all bonded interfaces.

Once created, the bonded interface will be added to the list of interfaces and the user will be able to define an IP address for it.



## VLAN

Interface	Id	Actions
Mgmt	12	
Mgmt	<input type="text"/>	new

You can add vlan on interfaces. id is a number between 1 and 4095

Figure 20 - VLAN settings

This section enables the creation of an 802.1q tagged virtual interface for the Toucan.

In order to create such an interface, select the physical interface on top of which the virtual one will be built, and define the required tag. Then click on new.

Once created, an interface can be deleted.

**Limitation:** No VLAN can be created on a bonded interface and no VLAN can be created on an interface included in a bonding group.

## Streaming

Interface	Streaming	Comment
lan1:	<input checked="" type="checkbox"/>	
lan2:	<input checked="" type="checkbox"/>	

You can select which interface will be used for streaming.

Figure 21 - Streaming settings

This section enables the user to select on which interface he will allow the streaming. The selected interfaces will be proposed when creating a new stream.

**Advice:** If the user allows the streaming on an interface that has no IP address, a warning will be displayed in the comment area. It is also strongly advised not to stream on the Mgmt interface.

## IGMP join

Send IGMP Join on streaming : ☒

You can configure sending IGMP Join on streaming.

Figure 22 - IGMP settings

This field describes whether the Toucan will send an IGMP join when starting broadcasting a stream. The configuration of this highly depends on the network equipment used and the multicast configuration. Please refer to the network devices reference manuals for this.

## IPv6

Interface	IPv6	Scope
lan1:	fe80::20c:29ff:fe17:c322/64 Link	
lan2:	fe80::20c:29ff:fec3:c627/64 Link	

Figure 23 - IPv6 settings

This section enables to see the IPv6 address of each physical interface.



## Firewall

On this page, it is possible to define firewallrules for all ports available on all interfaces.

Figure 24 - Firewall settings

### General Configuration

To activate the firewall system, the user must first check the box and then click on Apply.

### Advanced configuration

The user can define the firewall settings on given ports for the given interface, either for UDP or TCP.

In order to set a rule, the user should:

- Define the port of the rule
- Click on the required blockings (interface / input or output / TCP or UDP)
- Click on **Apply**

If the firewall settings are not activated, the default firewall of the system is used. The default rules are the following:

- Drop ports 12/25/1093 UDP and TCP on interface lan1 and lan2



This means that, by default, the Web interface and the SSH interface are opened through the interfaces used for streaming.



## Authentication

Figure 25 - Authentication page

### Password

This section enables the user to change the password of the admin and monitor accounts.

In case the equipment password is lost, the only way to recover access is to reset the equipment to its factory defaults (see page 51 – **COME BACK TO FACTORY DEFAULTS**).

### HTTPs

HTTPs administration can be enabled on the Toucan.

For this, the user should upload a certificate file and a server key file.

If the user wants to block access to HTTP admin (once HTTPs is setup) this can be done using the firewall rules (see page 19 – **FIREWALL**).

### FTP users

These FTP accounts are used for the OTT option, by default, they have the following passwords:

Login	Password
progressive_download	progressive_download
ott	ott

The passwords can be changed through this page.

The OTT process is detailed in the **OVER-THE-TOP (MULTISCREEN OPTION)** chapter, page 37.



## Configuration

This page allows the user to manage its different content configurations.

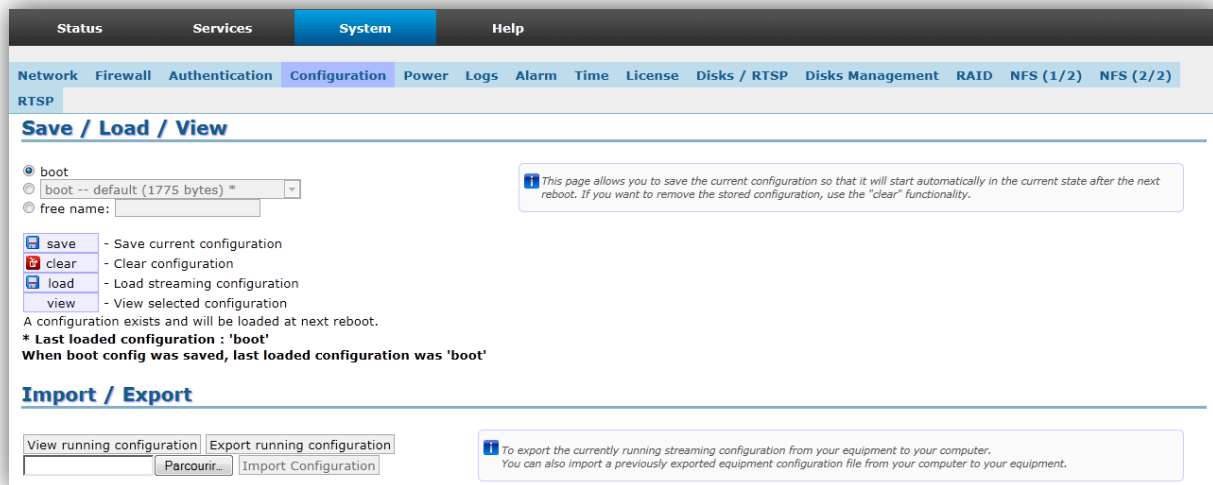


Figure 26 - Configuration page

### Save/Load

For each saved configuration, the user can:

- Delete it using the **clear** button
- Load it using the **load** button
- View it using the **view** button

The currently running configuration can be saved using the save button.

At the Toucan boot, the configuration named “boot” is loaded.

### Import/Export

The running configuration of the equipment can be exported to a file using the **export running configuration** button. It can also be viewed as text file using the **view running configuration** button.

A previously exported file can be loaded on a Toucan using the **import configuration** button. In order to do this, the user just needs to specify the file on the **choose file** field and press **import configuration** button.

## Power

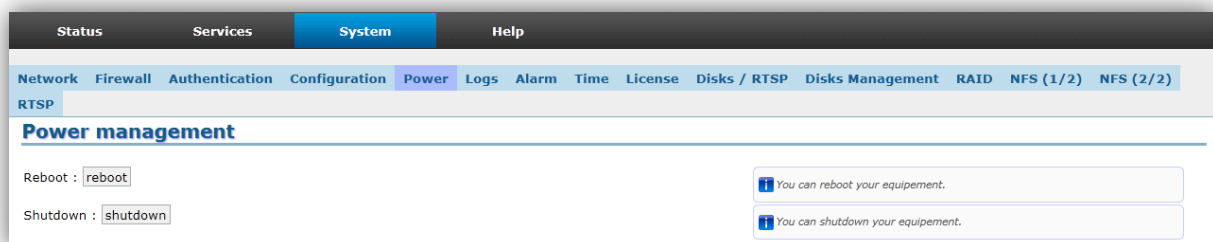


Figure 27 - Power page

The power page allows the user to reboot or to shutdown the equipment.



## Logs

Figure 28 - Logs page

The different events on a Toucan can be logged in different ways.

1. On the Toucan RAM (lost at each reboot)
2. On an external server
3. On a flash drive or a hard drive

### Log History

This concerns only the logs kept on the Toucan RAM.

In this section, the user can change the length of the logs history.

Logs history cannot exceed 5000 lines.

### External Log Server

In this section the user can configure an external syslog server.

The only configuration required is to enable this export and define the IP address and port of the syslog network server.

Anevia recommends the use of kiwi-syslog for Windows and syslog-ng for Linux.

Default port for syslog protocol is 514.

### Persistent Logs

If a USB mass storage device is connected, the user can force writing the logs on that device. Note that this device must be formatted before inserting it. The supported formats are XFS, EXT2, EXT3 and FAT.

An available hard drive can also be used to store the logs.

This may be required by Anevia support team.

The logs on that device would rotate each time they reach a given size, in order not to fill the USB, a given number of files are kept.



## Alarm

Figure 29 - Alarm page

### Alarm Management

Within this section, the user can configure the alarm notification of the Toucan. First, the user can enable this service to be displayed in the Status – Alarms page. In addition the user can decide to display or not display popup notifications of these alarms. The user can then fine tune the alarm triggers as shown in the screenshot above.

The **Reset** button comes back to the original settings for the alarm management.

### SNMP

*SNMP is a feature available as an additionnal option and thus, for using it, must be available in the license of the Toucan. For more information on this, please contact your sales representative.*

The Toucan has the ability to send SNMP traps for each alarm. If the user wants to configure a SNMP server, this can be done by enabling the checkbox and configuring the IP address of the SNMP supervisor and the community string used there.

In addition, the behavior of the sending of the traps can be modified. In case there is an alarm, traps are sent regularly until the alarm is cleared. The user can configure this time interval and limit the number of down traps sent.

### Anevia MIB

This section allows the user to download the SNMP MIB of the Toucan for being able to monitor it from the supervision servers.



## Time

It is very important that the Toucan is set to the right time. This is needed for best practice use of the logs and to maintain accuracy of all the scheduled operations (play, record, cleaning).

Figure 30 - Time settings page

### Current settings

This section displays the current date and time of the Toucan.

### Timezone settings

Setting of the time zone is done with 2 fields, the first one is the continent, and the second one is the main city.

### Date Time Settings

This section enables the user to manually set the date, time and time zone.

It is recommended not to manually set date and time.

### NTP Server

It is strongly advised to use an NTP server. The user should configure its IP address. In case an NTP server is set, it is very important that the timezone is also correctly set.





## License

The license page displays the status of all available licenses and allows the addition or removal of licenses. The hardware ID is used to generate a new license for Toucan equipment. If the user needs a specific option, he must check with his sales representative to purchase it.

**Hardware Identifier**

There are 2 ways to get the hardware id:  
[View it here](#) :   
[Download it](#)

**Register a new license**

License name:   
 file:  [Parcourir...](#)  
[register new license](#)

**License management**

License name:  [use as boot license](#) [delete](#) [view](#)

**Current License**

The table below informs you about the current license specifications.

The license currently in use is boot

License field	Value	License field	Value	License field	Value
license format version	0	maximum number of SPTS	unlimited	EPG export allowed	no
license hash format version	1	maximum number of MPTS	unlimited	virtualization host allowed	no
license id	5625	maximum number of radios	0	HLS allowed	yes
maximum uptime in seconds	unlimited	maximum number of hdaudios	0	pure RTP allowed	yes
expiration day	unlimited	SPTS allowed	yes	origin	kless
vod allowed	yes	basic failover	no		
maximum number of on demand streams	10000	mosaic generation allowed	no		
maximum number of ingests	1000	maximum number of mosaic screens	unlimited		
maximum number of on demand streams (VMOD)	4294967295	maximum number of mosaic input streams	unlimited		
maximum number of ingests (VMOD)	4294967295	maximum input bandwidth (Mbps)	unlimited		
maximum number of inputs	unlimited	maximum output bandwidth (Mbps)	unlimited		
maximum number of output channels	unlimited	OSPF allowed	no		

Figure 31 - License page

### Hardware identifier

This button enables the user to generate the hardware identifier of the equipment.

This hardware identifier is mandatory for the Anevia team to generate a license.

Prior to sending any license request, please use this button and attached the generated sysid.lic file and the device serial number to the request.

A sysid.lic file is a plain text with a 34-digit hexadecimal value:

01-02-9e8181614414368e2d3d5eb436baa4

### Register a new license

When the user receives a new license key, they must define a name for this new license and enter the license key file provided by Anevia in the license file field.

If the entered license is valid then a new entry will be created in the license list.

In order to use this license, it has to be defined as “boot license” and the equipment has to be rebooted.

### License management

This section enables the user to manage the different license files available on the Toucan.

For each license, different actions are available:

- **Use as boot license** – set this license as the one to be used after the next reboot. The selected license will be displayed with a star.
- **Delete** – remove the license file from the Toucan’s memory.



- **View** – enable the user to display the different fields of the selected license. These fields are displayed in a tabular format right below this button after the click.

---

#### Current license

This section displays the different fields of the license currently in use.

If the field for a required option is not included in the license, the user should contact Anevia.

---

#### Important fields

The license is a list of key/values.

Each key and value has a specific meaning, they are defined by the Anevia R&D team for the Anevia support team, thus not all fields are listed below.

However, some fields are really important and could be of importance for the user. Those are listed below:

**expiration day:** If the value is not “unlimited”, it means that the equipment will stop running once that expiration day is reached.

**maximum number of on demand streams:** This is the maximum number of sessions of outgoing streams either requested by RTSP clients or set by internal schedulers.

**maximum number of ingests:** This is the maximum number of sessions of incoming streams requested by the Toucan for recording channels on a file or a circular buffer.

**HLS allowed:** for using the optional HLS VoD feature, this field must be set.

**SNMP:** for using the optional SNMP feature, this field must be set.



## System pages – Disks configuration

### Disk Management

First, on the Disks Management page, you will have the list and the status of your disk drives connected to the Toucan.

Disk	Partition	State	Size	Filesystem	Used	Actions
<input type="checkbox"/> Disk #0:0:1:0	1	OK	20.0 GB	up	0%	remove format partition whole disk as: 1 parts
<input type="checkbox"/> Disk #0:0:2:0	1	OK	20.0 GB	up	0%	remove format partition whole disk as: 1 parts
<input type="checkbox"/> Disk #0:0:3:0	1	OK	5.0 GB	---	---	remove format partition whole disk as: 1 parts
	2	OK	5.0 GB	up	0%	remove format
	3	OK	5.0 GB	up	0%	remove format
	4	OK	5.0 GB	---	---	remove format
Disk #0:0:4:0	1	---	---	---	---	add partition disk as: 1 parts

Click here to try to detect newly inserted disks [retry](#)  
 Click here to empty disks configuration [remove all](#)

Figure 32 – Disks Management page

Within this page you can make the following actions:

- Add a connected disk to the system. By adding a new disk, the system will consider it as only one partition by default.
- Partition a disk in 1 to 4 equal parts. You can partition a disk which is already added or even formatted.
- Format a partition.
- Remove a partition or a disk from the system.



Be careful when using this page as you will loose all your data as soon as you partition a disk or you format a partition.

As soon as you have formatted a partition, you must set an RTSP path (see **Disks** page 28) for storing your data and using the Toucan.

### RAID

On the RAID page, you can apply a software RAID configuration on your disks. The RAID modes available on Toucan are mode 0, 1, 4, 5 and 6. For a definition of these standard RAID modes, please refer to the **ANNEX – RAID MODES** on page 52.



Figure 33 – RAID configuration page

On this page you have an initial overview of the currently configured RAID arrays.

To create a new RAID array, you have to choose the RAID mode in the scrolling list, then the RAID configuration below will update to fit the specific RAID mode requirements. If there is not enough partitions, a message will be displayed telling how many partitions there currently are and how many are needed.

The usage of the RAID does not require formatting the disks beforehand. The RAID build process will systematically format the disks.



The initial build or the rebuild of the RAID could take a lot of time. For example, using 4 disks of 500 GB in RAID 5 will result in an initial build of 2:30 hours. When the RAID must be rebuilt, it is recommended to limit the streaming on the equipment to avoid a huge increase in the rebuild time.

Once a RAID array is configured, it appears in the Disks Management page as only one disk.

Disk	Partition	State	Size	Filesystem	Used	Actions
RAID array #1 mode 1						
└─ Disk #0:0:1:0.1						
└─ Disk #0:0:2:0.1						
Disk #0:0:3:0	1	OK	5.0 GB	up	0%	remove format partition whole disk as: 1 parts
	2	OK	5.0 GB	up	0%	remove format
	3	OK	5.0 GB	up	0%	remove format
	4	OK	5.0 GB	---	---	remove format
Disk #0:0:4:0	1	---	---	---	---	add partition disk as: 1 parts

Figure 34 – Disks management table when RAID is configured

## Disks / RTSP

As soon as the partitions or the RAID are created, you will need to set an internal **RTSP path** for each partition to validate the use by the server of these partitions for video services.

After defining the RTSP path, you will need to setup the interface in order to allow the streaming of your content on a specific network. **Interface** defines the default interface used for streaming and recording for the specified disk. **Auto** will choose the best one depending on the original request.



This tab also gives information about the file system use and some hardware data on the disk.

On this page you can also find the general configuration for the minimum and the maximum speed of the construction or reconstruction of the RAID disks.

Disk	State	Size	Filesystem	Used	RTSP path	Interface
destroy						
RAID array #1 mode 1	Part OK Array ready	19.99 GB	up	13%	/raid1	auto change
Disk #0:0:1:0.1	Part 1 OK	5.0 GB	up	0%	/disk_1	auto change
Disk #0:0:2:0.1	Part 2 OK	5.0 GB	up	0%	/disk_2	auto change
Disk #0:0:3:0	Part 3 OK	5.0 GB	up	0%	/disk_3	auto change
	Part 4 OK	5.0 GB	---	---		

**Raid Config**

Min Speed: 1000 B/s  
 Max Speed: 200000 B/s

Figure 35 – RTSP paths configuration

## NFS

The Toucan series also allows managing net drives through NFS.

Remote path	State	Total size	Size used	Mount options	Path	Live	Action
Add Net Drive					/		Add

**Warning:** Any change here will stop all current sessions.

**NFS General Settings**

This section allows you to change the general behaviour of NFS.

Autoremount on failure at startup : ☐  
 Interval between checks : 15

Figure 36 – NFS configuration

### NFS Disks

A net drive is defined by two parameters:

- Its path on the network
- Its internal name for the FTP and the RTSP utilities

When you add a new net drive, its mount status is displayed on the screen to indicate if the disk could be used in writing and reading or only on reading (Multiple access disk, one writer, n readers). Information about its size and usage are also displayed on this tab.



## NFS General settings

---

When the system fails and need to be rebooted, the NFS disks can become unreachable during the reboot. In this case it is possible to configure the auto-remount function in order to check at every **Interval** if the disk is reachable.

This interval is set in seconds. To reduce the risk of reduced performances on the server we do not recommend using values of under 10 seconds for this parameter.



## Services pages

### VOD Contents

Within this page, the file contents of the disks are listed. By clicking on the red bin, the file can be deleted. A link is also available to reach the file with the RTSP protocol.

Disks/Files	Type	Size (Duration)	TS	Action
▼ disk1	Physical drive	2.07 GB / 20 GB		
▼ bloom	Folder	84.45 MB		
2 fragments	Existent Circular Buffer	84.45 MB (00:03:42)	RTSP	
brocellande-mpeg2-vod.ts	Video file	1.95 GB (01:21:34)	RTSP	
record1.ts	Video file	1 MB (00:00:02)	RTSP	
▼ disk2	Physical drive	174.94 MB / 20 GB		
▼ bbcworld	Folder	172.35 MB		
4 fragments	Existent Circular Buffer	172.35 MB (00:06:04)	RTSP	
disk3	Physical drive	0 B / 20 GB		
disk4	Physical drive	0 B / 20 GB		

Figure 37 – VOD Contents page

For adding content on of the Toucan disks, the user must connect through FTP with the same admin credentials of the web interface and the SSH. The password of the admin user can be changed in the **AUTHENTICATION** page (see page 20).

When accessing Toucan through FTP, the directories are constructed as followed:

```
-disk1
|   |-metas
|   |-streams
|-disk2
...
|-disk<n>
```

Video files must be uploaded in the *streams* directory of the desired disk. The *metas* directories have no specific roles and can be used by middleware or for storing any other file.

When using the FTP service, we highly recommend to use FileZilla<sup>2</sup> which is our reference software when working on Toucan.



The Toucan only supports video file formats when uploading with FTP in *streams* directories. The files will not appear if they do not respect the following restrictions:

- Container: MPEG2-TS
- Video codecs: MPEG2-video or MPEG4-AVC-H264
- Name format: ASCII string without space nor control character

### Scheduled record

The Scheduled Record page allows the user to program a record of a streaming channel on the disks of the Toucan. On this page, the programmed records are displayed with the description of the task and the current status. These records can be either **pending** (waiting for the record to start), **finalizing** (currently recording) or **over** (the record is finished).

<sup>2</sup> FileZilla project download page: <http://filezilla-project.org/download.php>



**Status** **Services** **System** **Help**

**Sched. Record** Sched. Play Sched. Cleanings Sched. Options Circular Buffers Circular Buffers Channels Playlists VOD Contents

### List of Record Tasks

*You cannot create scheduled cleaning on a record without repetition. If you want to delete the file, use "Delete File" option.*

Disk	Name	Source	Start Date	Duration	Repetition	Ends	Delete File After	Status	Actions
/disk1	weekly_record	239.2.1.1:1234:auto	2011-06-20 15:00:00	2 hours	Every Monday,Wednesday,Friday,Sunday	After 8 times	-	pending	
/disk1	week_record	239.2.1.1:1234:auto	2011-06-20 14:48:26	1 weeks	-	-	-	finalizing	

### New Record

*If the recording task is a one shot, the destination will be a file. If not, the destination will be a directory with inside, multiple files for each repetition.*

**Type:**  
☐ One shot record  
☒ Record with repetition

**Source:**  
 IP Address:  Port:  Interface:

**Destination file:**  
 Disk:  Name:

**Start:**  
☐ As soon as possible  
☒ Date:  at

**Duration:**

**Repeat the task:**  
 Every:   
 Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday ☐ Sunday ☐

**Ends:**  
☒ Never  
☐ After  times

Figure 38 – Scheduled record page

To add a new record, several fields must be specified:

- **Type**
  - **One shot record** if the task must be executed only once
  - **Record with repetition** if the task must be repeated with a period detailed below
- **Source**
  - The **IP address** and the **Port** of the streaming channel
  - The incoming network **Interface**
- **Start**
  - The record can start **As soon as possible** if this is a one-shot record, the record will start after having completed all the fields
  - The record can start at a specified **Date**. In case of a repeated record, this date will be used as the basis for the next record repetitions.
- **Duration**
  - The total duration of the record must be chosen here, it can be specified in **seconds, minutes, hours, days** or **weeks**.
- **Delete File** (for one-shot record)
  - The record file can **Never** be deleted, it will stay on the disk until being manually deleted.
  - The record file can be deleted after duration **after the start**. This duration can be specified in seconds, minutes, hours, days or weeks.
- **Repeat the task** (for record with repetition)
  - The record can be repeated **Every** X minutes, hours, days or months. It can also be repeated certain days in the week.
  - This repetition can **Never** ends or can be stopped **After** X times.

For integration with a third party software, the file name format of the created Scheduled Records is the following:

```
sr-[YYYY][MM][DD]T[hh][mm][ss]±[hh][mm].ts
```

where [YYYY][MM][DD]T[hh][mm][ss]±[hh][mm] is the ISO 8601 format of the timestamp, for example: 20100716T192030+0100





## Scheduled Play

The Toucan can also be programmed for scheduled plays.

This page displays the different plays listed. For each play, there are all the details available and the status of the task. These tasks can be either **pending** (waiting for the play to start), **finalizing** (currently playing) or **over** (the play is finished).

For adding a new scheduled play, several fields must be specified:

- **Type**
  - **One shot play** if the task must be executed only once
  - **Play with repetition** if the task must be repeated within a period detailed below
- **Source**
  - For selecting the content to be played.
- **Destination**
  - The **IP address** (unicast or multicast) and the **Port** of the output stream
  - The outgoing network **Interface**
  - The **TTL** of the outgoing packets
- **Start**
  - The play can start **As soon as possible** if this is a one-shot play, the play will start after having completed all the fields
  - The play can start at **Boot up** of the server.
  - The play can start at a specified **Date**. In case of a repeated play, this date will be used as the basis for the next play repetitions.
- **Duration** (for **Start** with **As soon as possible** and **Date** settings)
  - The total duration of the play must be chosen here, it can be specified in **seconds, minutes, hours, days or weeks**.
- **Loop** (for **Start** with **Boot up** settings)
  - When the video is scheduled to stream at bootup, we can specify the number of loops which can also be infinite
- **Repeat the task** (for play with repetition)
  - The play can be repeated **Every** X minutes, hours, days or months. It can be also repeated certain days in the week.
  - This repetition can **Never** end or can be stopped **After** X times.
- **TS over RTP**
  - If **Yes** is selected, your file will be streamed with RTP over UDP instead of direct UDP.

The screenshot shows the 'Scheduled Play' page in the Toucan interface. At the top, there are tabs for 'Status', 'Services', 'System', and 'Help'. Below these are sub-tabs for 'VOD Contents', 'Sched. Record', 'Sched. Play' (selected), 'Sched. Cleanings', 'Sched. Options', 'Circular Buffers', 'Circular Buffers Channels', 'Playlists', 'Middleware', and 'RTSP'. A 'USB Loader' button is also visible.

The main section is titled 'List of scheduled plays tasks'. It contains a table with the following data:

Source	Destination	Start Date	Duration	Repetition	Ends	Loop	TS over RTP	Status	Actions
/disk1/brocellande-mpeg2-vod.ts	239.51.25.1:1234:auto	2011-07-25 15:35:56	-	Every 1 hours	Never	-	no	over	[Icons]

Below the table is a 'New Play' section with the following fields:

- Type:**
  - ☒ One shot play
  - ☐ Play with repetition
- Source:**
- Destination:**
  - IP Address:
  - Port:
  - Interface:
  - TTL:
- Start:**
  - ☒ As soon as possible
  - ☐ Boot Up
  - ☐ Date:  at
- Duration:**
- TS over RTP:**
  - ☒ No
  - ☐ Yes

A 'New Play' button is at the bottom of the form.


Figure 39 – Scheduled Play page



## Scheduled Cleanings

Figure 40 – Scheduled Cleanings page

When having a repeated scheduled record set up, we may need to clean all the oldest files generated by these records, especially if it has been set up to never end.

For adding a cleaning task, the user must click on this icon  for the relevant scheduled record in the **SCHEDULED RECORD** page (see page 31). Then they will be redirected to the Scheduled Cleanings page.

For adding a new scheduled cleaning task, several fields must be specified:

- **Start**
  - The play can start at a specified **Date**. In case of a repeated play, this date will be used as the basis for the next play repetitions.
- **Delete files older than** the time after which the files can be deleted
- **Repeat the task**
  - The play can be repeated **Every** X minutes, hours, days or months.
  - This repetition can **Never** end or can be stopped **After** X times.

These tasks can be then either edited or deleted from this same page.



Disk	Recording Name	Start Date	Delete File Older Than	Repetition	Ends	Status	Actions
/disk1	every2min	2011-10-11 14:12:55	10 minutes	Every 2 minutes	Never pending		 

Figure 41 – Scheduled Cleanings tasks list

## Scheduling Options

On this page, an auto-remove functionality can be enabled. Only the period of the repeating removal must be specified either in **hours**, **days**, **weeks** or **months**.

Figure 42 – Scheduling options page



## Circular Buffers

A circular buffer allows permanent and ongoing recording of a channel by specifying a time range. The channel will then be recorded into the circular buffer within this time range (for example 2 hours). When the end of the circular buffer is reached, the old data (over 2 hours) is removed and replaced by the new data (under 2 hours).

Figure 43 – Circular Buffers page


Different parameters must be defined in order to use the circular buffer:

- **Disk:** Like all other recordings, you must define on which disk the circular buffer will be stored
- **Circular Buffer path:** This is the RTSP path on which a RTSP client can access to the circular buffer.
- **Duration:** This is the time range used for the recording. By default it is set to 60 minutes with 6 fragments of 10 minutes. The detailed of the fragments can be changed by clicking on the **Switch to advanced mode** icon.
- **Name:** It is the folder name on the disk where the circular buffer will be written.
- **Source:** The multicast/unicast address of the stream to record plus the port.
- **Minimum time shifting:** This is the delay between the original channel and the recorded circular buffer.
- **Fallback:** Here we specify the TS file which will be played in case of an interrupted source from recording channel. If another one is specified in the RTSP profile fallback, the one of the RTSP profile will override this field (see page 39). Please note that, in case of interrupted source, the circular buffer will be recorded with gaps, the fallback will be replaced only at the playing of the circular buffer.



To ensure the good usage of this functionality, the **Fallback** stream or recording gap replacement stream must have the same characteristics as the original recording stream:

- Same audio and video codecs
- Same resolution for the video
- Same PIDs (Audio, Video, PMT) and same SID – With this, we can have only one fallback file for several channels recording with a customised fallback for each channel
- It is better if the stream begins with a discontinuity counter

Once a circular buffer has been created, you can create a circular buffer channel by clicking on .

Please note that the Circular Buffers will be available as other video files, each fragment of the Circular Buffer will be located in a directory called with the name of the Circular Buffer. Each fragment of the Circular Buffer will have the following naming rule:

`[CBname]/cb-[YYYY][MM][DD]T[hh][mm][ss]±[hh][mm].ts`

where `[YYYY][MM][DD]T[hh][mm][ss]±[hh][mm]` is the ISO 8601 format of the timestamp, for example: 20100716T192030+0100

## Circular Buffers Channels

The circular buffers recordings can be streamed onto the network with a delay. This feature is called the circular buffers channels. These channels are listed within this page. For each channel, all the configuration



details of the channel are displayed and also the current status. It is also from this page that the channels can be deleted.

For adding a new channel, it can be done from the **CIRCULAR BUFFERS** page (see above).

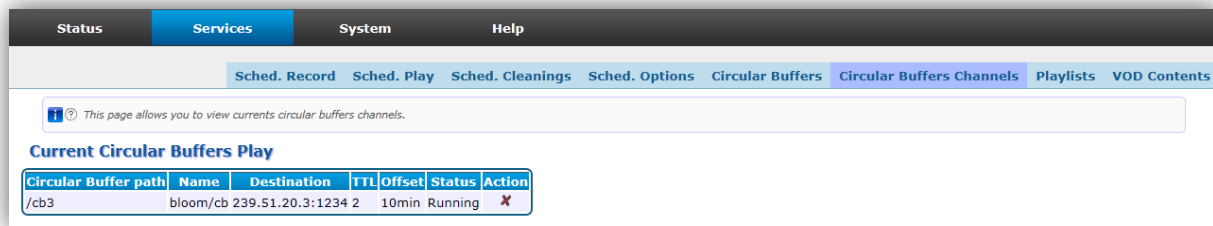


Figure 44 – Circular Buffers Channels page

## Playlists

The playlists menu allows creating playlists of content based on available media on the disks.

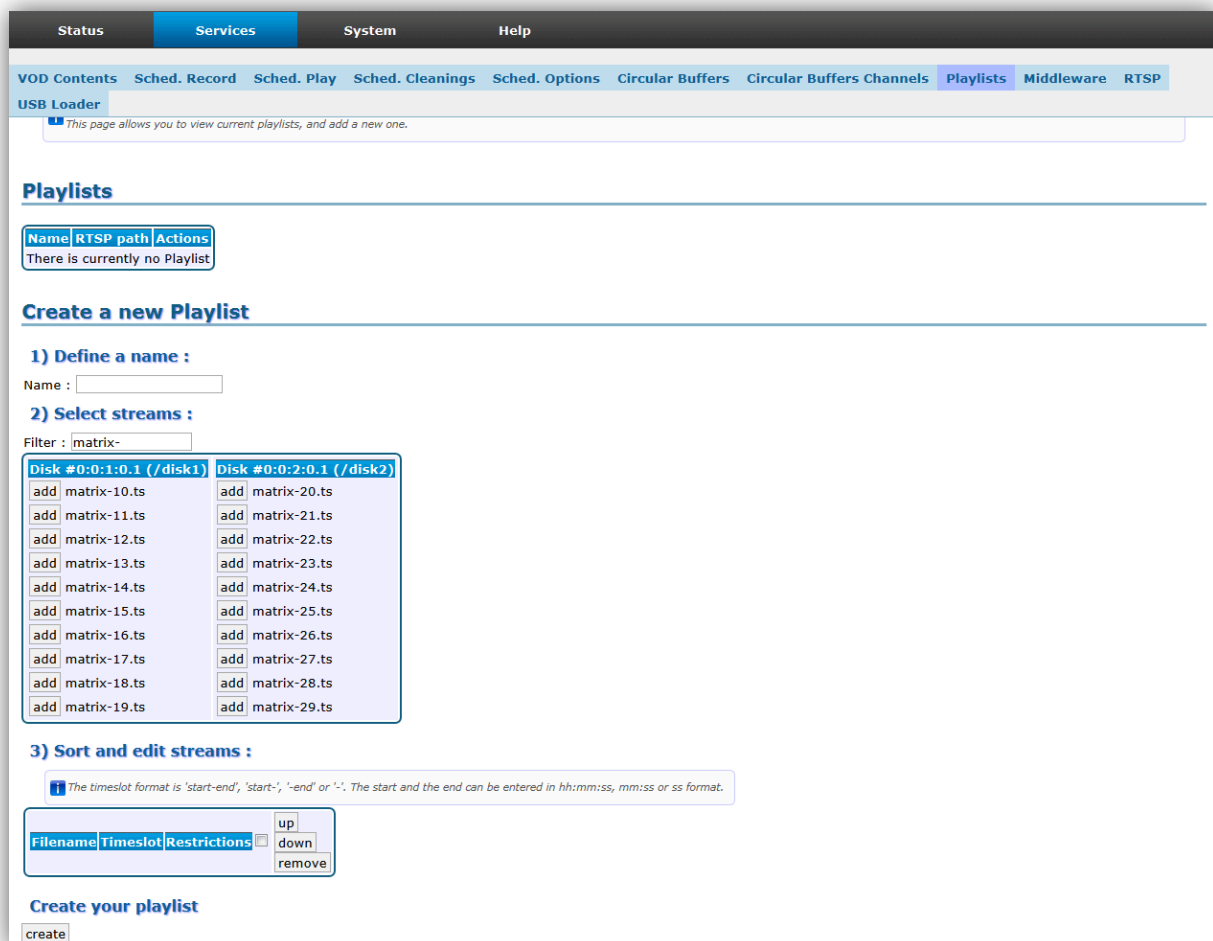


Figure 45 – Playlists page

It is possible to create a new playlist by first giving it a **Name** then using the **add** buttons in front of each content. A **Filter** is also available to get only a selection of the files displayed. As soon as three letters are typed, the filter is active.

The **up**, **down** and **remove** buttons can be used to manipulate respectively the position of the content in the playlist or to remove content from the list.

The checkbox in front of each file has two purposes:



- Moving several files in once in the playlist
- Changing the restrictions of a single file

Finally by clicking on **create**, it will create the playlist.



For the playlist to be correctly read by a set top box (STB), all the included video streams should have the same PID, otherwise the STB may stop reading it.

**Note:** Playlists can be dynamically edited through the SOAP API. Please refer to the relevant SOAP API documentation for more information.

## Over-The-Top (Multiscreen option)

This page is used for enabling the OTT service which will allow the user to make VOD services available for mobile devices. In order to function, the Multiscreen option must be enabled by the license. Please contact your Sales representative for more details.

Figure 46 – OTT page

To enable the service, the user must check the right interface(s) on which they want the service to work. The user can also limit the outgoing bit rate of the OTT traffic on each checked interface.

Once the service is enabled, the user can add MP4 video files which will be available as adaptive bitrate content. For this, they must connect through FTP to the Toucan using the *ott* user as described in the **FTP USERS** chapter, page 20. The interest in HTTP adaptive streaming is to have several bitrates for the same content, the user can put several MP4 files of the same content with several bitrates following this rule of naming:

`<VIDEONAME>_<BITRATE>.mp4`



`<BITRATE>`, in the naming of several MP4 files, is a free naming but **must not** contain any underscore character (`_`)

For other file formats, they can be reached through Progressive Download, the files, in this case, must be added using the *progressive\_download* user.

### Example

In the following example, we added files *MovieTrailer\_H264\_380k.mp4* and *MovieTrailer\_H264\_256k.mp4* with the *ott* user on the disk1 and the file *OtherMovieTrailer.3gp* with the *progressive\_download* user on the disk2.

Disks/Files	Type	Size (Duration)	TS	Progress. DL.	HLS VOD	Action
▼ disk1	Physical drive	51.41 MB / 20 GB				
MovieTrailer_H264 (v:345, v:423, a:64, a:76) kbps	Video file (HLS VOD)	50.72 MB (00:07:41)			HLS	
▼ disk2	Physical drive	141.54 MB / 20 GB				
OtherMovieTrailer.3gp	Video file (Progress. DL.)	141.53 MB		HTTP		

Figure 47 – VOD Contents page with OTT content



Then, in the VOD Contents page, the links are available for the HLS of *MovieTrailer\_H264* and the *OtherMovieTrailer* in progressive download.

*MovieTrailer\_H264* is seen as only one content item as we uploaded several bitrates of the same video file.

The link on the page is only available for Apple HLS format and has this URL:

```
http://<Toucan_IP>/ott/disk1/MovieTrailer_H264.ssm/MovieTrailer_H264.m3u8
```

Nevertheless other adaptive bitrate formats are available, they are constructed as follow.

- Microsoft Smooth Streaming

```
http://<Toucan_IP>/ott/disk1/MovieTrailer_H264.ssm/Manifest
```

- Adobe HTTP Dynamic Streaming (HDS)

```
http://<Toucan_IP>/ott/disk1/MovieTrailer_H264.ssm/MovieTrailer_H264.f4m
```

- MPEG-DASH

```
http://<Toucan_IP>/ott/disk1/MovieTrailer_H264.ssm/MovieTrailer_H264.mpd
```

## Middleware

This page aims at enabling the Minerva connector developed for the interoperability with this specific middleware.

The fields should be clear. The service can be **Enabled** by defining a **Listening interface** and a **Listening port** on the Toucan.

The Minerva server information must be filled with its **IP**, **port**, **login** and **password** to let the Toucan connect to it.

Figure 48 – Middleware page



## RTSP Configuration

Figure 49 – RTSP configuration page

### Listening ports

Multiple ports can be set for the listening ports defined for the web services and the RTSP requests. In some configurations when using different STBs on a platform, it is required to provide different connecting ports for each STB family.

In most cases the default port value (554) is sufficient enough for standard usage.

### Third party controls

For advanced configuration and services we can set the billing and the access control fields. For these fields please refer to the RTSP developer guide provided.

### RTSP profiles

The session profile section allows for creating a specific RTSP behavior associated to a specific Agent ID. By default some configurations are available to give an overview of the possibilities.

Each STB manufacturer has its own implementation of the RTSP commands; it results in a complex interoperability process between vendors and VoD server providers. The Toucan provides, through its session profile manager, an advanced tool to reduce the integration time with STB manufacturers.



This tool can not be used for integrating trick modes, but also helps for the first RTSP integration step.



Different parameters are available to validate the RTSP compliance between the server and the STB:

<b>User Agent prefix</b>	The beginning string composing the Agent ID
<b>First TCP keep alive delay</b>	Delay between the last TCP data exchanged from client to server and the emission of a first TCP keep alive. This parameter needs to be used if the STB does not comply with the RTSP specification for GET_PARAMETER keep-alive messages. Set to 0 if unused.
<b>Connection maximum Idle Time</b>	The maximum delay before the closing of the connection if no signalization data has been exchanged. Must be set to 0 if there are no GET_PARAMETER messages.
<b>TCP keep alive interval</b>	Delay between two TCP keep-alives if the first TCP keep-alive is not successful. Must be set to 0 if unused.
<b>Play session timeout</b>	If no GET_PARAMETER command is received during x seconds, then the PLAY session is dropped.
<b>Record session timeout</b>	If no GET_PARAMETER command is received during x seconds, then the RECORD session is dropped.
<b>No Duration in Range</b>	Some STBs like those by Motorola refuse to play content which is currently recorded if the total duration varies. As it is a standard behavior, it is possible to remove the end duration from the range answer in order to be compliant with these STBs.
<b>Ignore Range On Setup and Ignore Range On State Change</b>	Both options have been designed for circular buffer management when it exists a restrictive policy in term of program viewing window. These options also allow for blocking the viewing of programs into a delayed channel circular buffer outside the authorized delay.
<b>Preferred transport</b>	Different transport modes are possible within the Toucan: TS, pure RTP or TS over RTP. It is possible by default to force a transport or to favor one of them; the STB during the RTSP session initialization could use a different one in this latter case.
<b>TCP keep alive probes</b>	The number of TCP keep alives sent before closing definitely the connection.
<b>Close on teardown</b>	This option is specific to STBs which do not close the TCP connection after TEARDOWN. In this case the server clears the session and closes the TCP connection after TEARDOWN to keep a clean status.
<b>Teardown at End of connection</b>	If the connection closes or if the server needs to close the connection after multiple unsuccessful TCP keep-alives then the TEARDOWN is systematically done by the server. This option must be used if there is no GET_PARAMETER message used.
<b>Remove URL trailing slash</b>	Remove of the last slash (a bug-fix for some STBs) in the URL.
<b>Never send RTSP notifications</b>	ANNOUNCE requests are never sent to the client even if the x-mayNotify header was provided in the RTSP signalization.
<b>On end</b>	When reaching the end of the file different behaviors are possible including STOP or PAUSE. STOP is considered as a TEARDOWN.
<b>On beginning</b>	When reaching the beginning of the file with an FR, then two behaviors are possible PAUSE or PLAY.
<b>Fallback on interrupted source</b>	When the <b>Play on Interrupted Source</b> field is configured for the fallback, this field gives the name of the file used for this. It will override the one configured in the Circular Buffer settings (see page 35).
<b>Play on Interrupted Source</b>	Three behaviors are possible <ul style="list-style-type: none"> <li>• Skip the lost part of the content during the recording</li> <li>• Replace it during the playback by the fallback content once and then kill the session,</li> <li>• Replace it during the playback and loop on the fallback content until we get a valid part of the recorded content.</li> </ul>
<b>Replace Transport Destination With Peer Address</b>	This should be used in very specific cases when the STB sets the transport destination field in the RTSP request and the Toucan must not take it into account but must use the source IP address of the packet.





## Streaming default values

These are the default values used to program a new play task. The outgoing stream port by default is 1234. If streams need to be sent in RTP, RTP must be selected.

## USB loader

This service has been created for being able to upload and download files directly from/to a USB drive (depending on hardware equipment). This is useful when having a lot of files to put on the Toucan disks avoiding long wait times using FTP transfer.

This is in a beta version as it is not a core functionality of the Toucan, so the user interface is not yet final.



Figure 50 – USB loader page

To copy files from the USB mass storage to the hard disks of the Toucan, the user has to navigate inside the directories of the USB drive. When the files are found, the checkboxes must be checked and the user must click on the **Copy** icon .

Then the following page is shown:

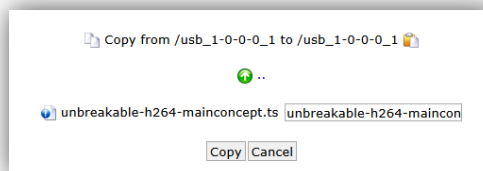


Figure 51 – Choosing the destination directory

To change the destination directory, the user must click on the two dots (..) just next to the arrow icon . Then it must browse to the desired directory, by clicking first on **TS** then on the desired **disk** and finally on **streams** where the video files are stored in the Toucan.

A click on **Copy** is enough for starting the copy.



During the copy of files, the web interface is frozen to a blank page and is no longer responding to any request. This is normal. It will return to its usual behaviour as soon as the copy is finished.



## Help pages

### About

**About ANEVIA**

Anevia provides video solutions and service infrastructure for the delivery of interactive Live TV and video-on-demand (VoD) services. With over 300 deployments in 50 countries representing millions of users and 10,000 live channels, Anevia has proven expertise and experience in delivering advanced turnkey video solutions to the hospitality market and end-to-end infrastructure solutions to service providers.

Anevia's turnkey solutions provide cost-effective, flexible and high performance "in-the-box" solutions for delivery of live TV, pay TV, VoD and pre-recorded programs in hotels, healthcare units, waiting rooms, corporate sites and event venues.

Our carrier-grade, end-to-end video infrastructure solution, 3Screens, provides telecommunication operators and service providers with manageable and seamless delivery of video services to TV, PC, Internet-connected devices and mobile phones.

Television

Internet

Mobile

3Screens covers the value chain from live ingestion with DVB to IP gateways, content preparation, content distribution network, network and asset management, through to video servers and advertising applications. Platforms are future-proof, anticipating technology evolutions such as IMS (IP Multimedia Subsystem).

All platforms, whether "in-the-box" or infrastructure, enable delivery of feature-rich, innovative video services including live TV streaming, interactive VoD, VoD gaming, TV commerce and time-shifted services such as Catch-up TV, network personal video recorder (nPVR) and pause TV.

Anevia's value proposition to service providers:

- Quality in content delivery through a single end-to-end infrastructure;
- Seamless triple screen services for delivery of any content to any device;
- Business-oriented solutions developed for capex-opex optimization, new advertising requirements and revenue sharing models.

Anevia's value proposition to hospitality providers:

- Cost-effective and manageable turnkey solutions that are compact, easy-to-install and simple to operate;
- Quality in content delivery through high-performance, proven video streaming technologies;
- User-friendly interfaces with full channel overviews for intuitive easy-to-use program selection.

Illustration 52 - About page

This section gives a brief overview of the company and the other products.

### Version

**Current version**

Software Revision: Anevia Toucan v3.1.1 (debug version - build 2011-09-02 14:43:38 on sicomp)  
Hardware Revision: 1.0

**Soap modules versions**

SoapVod 1.3.4  
SoapVodott 1.0.1

**Upgrade**

Please enter the path to the AFI file

**i** This page allows you to upload new firmware, in order to upgrade the equipment.  
Note : It's recommended to reboot the equipment before performing an upgrade.

Figure 53 - Version page

#### Current version

The information displayed in this section is:



- The current software version
- The current hardware version

### Soap module versions

In this section, the versions of the different SOAP modules are displayed. With this, you can refer to the right documentation for developing SOAP clients.

### Upgrade

In case the user wants to upgrade or downgrade the equipment, they need to download the AFI file first and then upload it on the Toucan. A bar graph shows the progression of the upload.



**Do not switch-off the equipment while upgrading the firmware! This will result in an unusable state: the equipment won't boot up again.**

Figure 54 - Upgrading through the web interface

After the upload, it will take time for writing the image. After this, the Toucan will reboot. The login page will be shown during the reboot:

Figure 55 - Reboot after upgrade

### Uptime

Figure 56 - Uptime page

This page shows the up-time of the system.



## Support

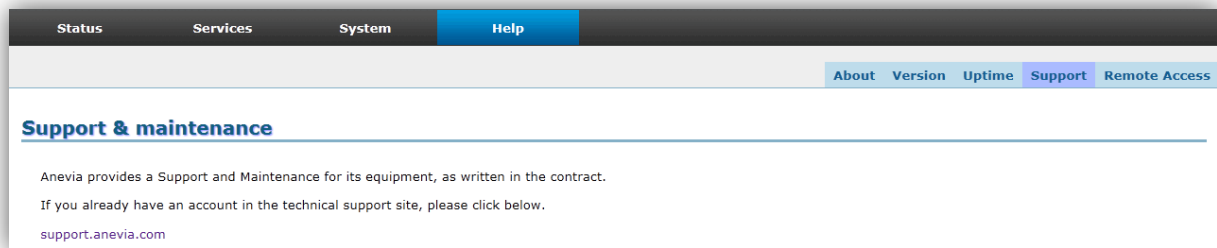


Figure 57 - Support page

This page gives information about Anevia support services.

## Remote Access

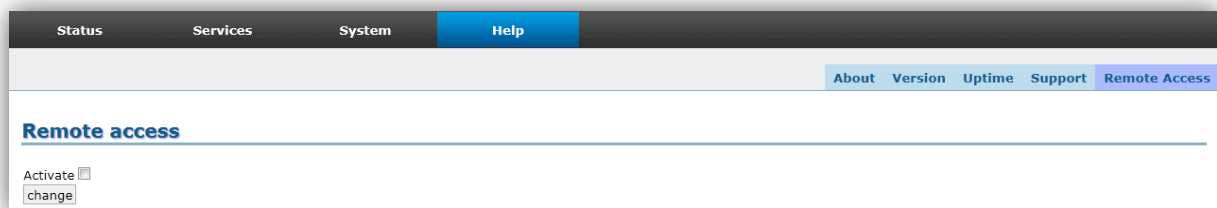


Figure 58 – Remote Access page

When enabling this feature, the support team can access easily to the Toucan for debugging. The server must be able to access a remote server through HTTPS (port 443) for enabling the feature.



# Command line interface

The command line interface gives the administrator the same level of management as through the web interface. In some cases when the web interface is unreachable for network reasons, this is the only way to access and to configure the Toucan.

## Login through SSH

Connect to the equipment with an SSH client (you can provide any login) and enter the `monitor` password when prompted.

Once logged in with the `monitor` password, a screen prompt appears:

```
hostname>
```

When accessing the Toucan through the command line we are given read-only access to the configuration parameters.

## Enable mode

In order to have full privileges, enter in `enable` mode using the administrator password:

```
hostname> enable
password: [enter the administrator password]
hostname#
```

To exit the `enable` mode, use the following command:

```
hostname# exit
hostname>
```

## Commands

The command line interface provides a limited set of commands. These basic commands allow access to information about the Toucan status. If the `enable` mode is activated it also allows modification of some configuration parameters in the same way as with the web interface.

All commands are listed and described below:

Command name	Description
<b>aoedrive</b>	Sets a new AOE drive
<b>bonding</b>	Accesses and defines the bonding configuration
<b>date</b>	Shows or modifies the date and time
<b>drives</b>	Configures drives
<b>enable</b>	Moves to full privileges mode
<b>ethconfig</b>	Shows or modifies the Ethernet cards configuration
<b>exit</b>	Exits from the command line interface
<b>exp</b>	Exports the current configuration in a file
<b>ftpd</b>	Activates/deactivates the FTP service
<b>help</b>	Shows the online help
<b>hostname</b>	Shows or modifies the hostname
<b>imp</b>	Imports a configuration from a file (linked with import)
<b>ipconfig</b>	Shows or modifies the Ethernet cards addresses
<b>log</b>	Shows log information
<b>netdrive</b>	Adds a new Net drive (NFS)
<b>passwd</b>	Modifies the passwords
<b>portfwd</b>	Activates the port forwarding



<b>raidconfig</b>	Defines the RAID configuration
<b>reboot</b>	Reboots the Toucan
<b>reset</b>	Reboots the Toucan
<b>route</b>	Shows and edits the route table
<b>settings</b>	Resets to default factory configuration
<b>shutdown</b>	Stops the server
<b>softreset</b>	Restarts the applications only
<b>traceroute</b>	Adds new routes for static routing
<b>upgrade</b>	Upgrades the Toucan with a new firmware
<b>uptime</b>	Shows the time passed from the start of the Toucan
<b>version</b>	Shows the current hardware and software version
<b>vlanconfig</b>	Shows and modifies the vlan configuration

Some commands need to be explained in detail, see below:

## help

Called without argument, this command displays the list of available commands.

Called with a command as argument, it displays the help available for that command.

Called with a command and a command option as arguments, it displays the help for this command option.

The first example displays the help for the `version` command:

```
hostname> help version
version - display firmware version

usage:
version
```

The second example displays the help for the `config` command, with `clear` as an option:

```
hostname> help config clear
config - configuration management

usage:
config clear
erase the streaming configuration
```

## hostname

Displays or changes the hostname.

Syntax: `hostname <new hostname>`

Example:

```
anevia# hostname vod-1
[You get disconnected. Connect again...]
vod-1>
```

## passwd

Changes the `monitor` password if run in normal mode, and changes the `admin` password if run in enable mode.

Example:

```
hostname# passwd
Password: [enter new password]
Confirm password: [enter new password again]
```



```
hostname#
```

## ethconfig

Displays or changes the configuration of the Ethernet interfaces.

Syntax: `ethconfig [<lan> <media>]`

where <lan> is the interface: lan1 or lan2 and <media> is either 100f (100 Mb full duplex), 100h (100 Mb half duplex), 10f (10 Mb full duplex), 10h (10 Mb half duplex) or auto (auto negotiation).

First example, force the LAN2 interface to 100 Mb full duplex:

```
hostname# ethconfig lan2 100f
```

Second example, put the lan2 interface in auto negotiation:

```
hostname# ethconfig lan2 auto
```

## ipconfig

Displays or changes the IP configuration.

Syntax:

`ipconfig set <address> <netmask> [0|<gateway>] [<device>[.<vlan>]]`

`ipconfig disable [<device>[.<vlan>]]`

`ipconfig [show] [<device>[.<vlan>]]`

where <device> is lan1 or lan2 and <vlan> is a 802.1Q vlan tag

First example, set the network configuration to:

lan1: IP 10.0.0.125

Netmask: 255.255.0.0

Gateway: 10.0.0.1

lan2: not used

```
hostname# ipconfig set 10.0.0.125 255.255.0.0 10.0.0.1 lan1
hostname# ipconfig disable lan2
```

Second example, set the network configuration to:

lan1: IP 10.0.0.125

Netmask: 255.255.0.0

Gateway: 10.0.0.1

lan2: 192.168.0.32

Netmask: 255.255.255.0

```
hostname# ipconfig set 10.0.0.125 255.255.0.0 10.0.0.1 lan1
hostname# ipconfig set 192.168.0.32 255.255.255.0 0 lan2
```

## vlanconfig

Displays or changes the VLAN configuration.

Syntax:

`vlanconfig show`

`vlanconfig add <device>.<vlan>`

`vlanconfig rem <device>.<vlan>`

where <device> is lan1 or lan2, and <vlan> is a 802.1Q vlan tag.

First example, set the network configuration to:

Mgmt: 10.0.0.125

Netmask: 255.255.0.0

Gateway: 10.0.0.1



VLAN1.5: 10.0.0.5  
Netmask: 255.255.0.0

```
hostname# ipconfig set 10.0.0.125 255.255.0.0 10.0.0.1 lan1
hostname# vlanconfig add lan1.5
hostname# ipconfig set 10.0.0.5 255.255.0.0 lan1.5
```

Second example, removes a vlan from the configuration:

LAN 1: configured  
VLAN1.5: not configured

```
hostname# vlanconfig rem lan1.5
```

## config

Saves or cleans the streaming configuration.

Syntax:

```
config save|clean|load [name]
config rename name new_name
config setboot name
```

First example, save the current streaming configuration, so the Toucan will start automatically with this configuration after the next reboot:

```
hostname# config save
```

Second example, remove the stored streaming configuration:

```
hostname# config clean
```

## date

Displays and sets the date (used for the logging functionality).

Syntax:

```
date
date set <year> <month> <day> <hour> <minute> [<second>]
date ntp <ntp-server>
date resync (from NTP server)
```

First example, set the date to March 22nd, 2005 2:15 p.m.:

```
hostname# date set 2005 03 22 14 15
```

Second example, set the date using an NTP server:

```
hostname# date ntp 138.195.130.71
```

## log

Displays the log information of the Toucan and set the logging parameters.

Syntax:

```
log
log queue <number of entries> (to define the log queue length)
log show [<significant|warning|error|critical>] (by default all)
```

Example:

```
hostname> log show
```





## settings

Reset all settings to the factory values.

Syntax: `settings clear`

## exp

Exports the global configuration of the Toucan in a private format using a secure copy path (scp).

When there is no filename declared, the default filename used is *expconfig*.

Syntax:

```
exp [user@]ip:path [all]
exp [user@]ip:path only <group> [ <group> ...]
exp [user@]ip:path [not] <group> [ [not] <group> ...]
```

Where <group> is a group of values to be saved among:

manager  
currentstreaming  
log  
bonding  
host  
defaultstreaming  
vlan  
savedstreaming  
ntp  
lan1  
lan2

By default all these values are saved.

Example:

```
hostname# exp john.doe@10.0.0.19:~/anevia.conf
```

## imp

Imports a configuration of the Toucan in a private format using a secure copy path (scp).

Syntax: `imp [user@]ip:path`

Example:

```
hostname# imp john.doe@10.0.0.19:~/anevia.conf
```

## upgrade

Anevia provides firmware upgrades for this equipment during the warranty period to the customers who subscribed to the maintenance contract. The new firmware releases are available from the support Web site.

New firmware releases are provided through AFI file, the upgrade procedure is described below.

To upload a new firmware onto the Toucan, please download first the corresponding AFI file on the Anevia support web site.

Old firmware releases are provided through bin and sum files, the upgrade procedure is described below.

You should download the ZIP file *Toucan-<version>.zip* containing the new firmware (where *version* is the version of the new firmware) and extract it. Once files are extracted, you must have two files:

the firmware file *Toucan-<version>.bin*,

a second file *Toucan-<version>.sum* which contains the checksum of the firmware file.

Follow this procedure to upgrade the firmware of the equipment:

1. Put the file(s) on an HTTP server in a same directory.
2. Stop the streams.



3. In enable mode, run:

```
anevia# upgrade http://192.168.4.10/path/Toucan-XXX-1.6.1
```

Where:

- 192.168.4.10 is the IP address of the HTTP server,
- path is the path to the two files on the HTTP server,
- 1.6.1 is the version of the firmware that you are upgrading to.

**Note:** You should not include any extension (neither .bin nor .sum) in the URL.

When prompted, press the Enter key and the equipment will reboot.



Do not switch-off the equipment while upgrading its firmware! This will result in an unusable state: the equipment will not boot up again.



The SSH key will change after upgrading the firmware. If you use an SSH client such as PuTTY, you will be warned for this reason. If you use a standard UNIX SSH client, please refer to its documentation to know how to handle this case (for example, removing the `/.ssh/known_hosts` might be sufficient).



# Troubleshooting and maintenance

---

## Most Common Problems

---

Most problems encountered by Anevia Technical Support team involve source issues (encrypted programs, incorrect audio type, etc.), improper Toucan configuration, or channel mapping issues.

Having a working knowledge of the devices and systems involved in the provision of digital services minimizes the occurrence of problems, as well as time to repair.

One of the best sources for troubleshooting information is the manual provided by the equipment's manufacturer.

Some basic rules that apply to all digital system troubleshooting:

- Look for any changes that have taken place since the system was last working properly.
- Verify that all cabling is installed and connected properly.

It is important to have an understanding of the functions of the various components and systems that make up a digital head-end.

## Come back to factory defaults

---

This section summarizes the *settings clear* procedure. This procedure sets the unit to its default factory values. But if you are remotely connected to the server and you do not want to **lose** the connection by coming back to the factory default settings, please read **carefully** these instructions. If you have any further question about this procedure, please contact the support team.

- Log in to the unit using the SSH access.
- Type `enable`
- You will be prompted for a password. Use the same password required to log in as admin in the web interface.
- Type `ipconfig`, you will need this information for the next step.
- Type `settings clear`
- Type `ipconfig set <unit's IP> <netmask> <gateway> Mgmt` – The information for this command comes from the previous `ipconfig`
- Type `reboot`
- Wait for the unit to reboot.

## Troubleshooting from the GUI

---

Useful troubleshooting information available from the Toucan web interface:

- Output bit rate accessible on the main page
- Number of active sessions
- Logs

## Diagnostics Interface

---

The Ethernet connection is the most flexible interface; it allows both local and remote troubleshooting. Firewalls present at your site, however, may restrict access to the network from outside. If that is the case, a modem connection is used to connect through the serial port.

## How to Contact Technical Support

---

Technical Support is available through the web site.

<http://support.anevia.com>



## Annex – RAID modes

---

Here are the definitions of the different RAID modes available on the Toucan.

### RAID 0

Stripped set (minimum 2 disks) without parity. Provides improved performance and additional storage but no fault tolerance. Any disk failure destroys the array, which becomes more likely with more disks in the array. A single disk failure destroys the entire array because when data is written to a RAID 0 drive, the data is broken into fragments. The number of fragments is dictated by the number of disks in the drive. The fragments are written to their respective disks simultaneously on the same sector. This allows smaller sections of the entire chunk of data to be read off the drive in parallel, giving this type of arrangement huge bandwidth. When one sector on one of the disks fails, however, the corresponding sector on every other disk is rendered useless because part of the data is now corrupted. RAID 0 does not implement error checking so any error is unrecoverable. More disks in the array mean higher bandwidth, but greater risk of data loss.

### RAID 1

Mirrored set (minimum 2 disks) without parity. Provides fault tolerance from disk errors and single disk failure. Increased read performance occurs when using a multi-threaded operating system that supports split seeks, very small performance reduction when writing. Array continues to operate so long as at least one drive is functioning.

### RAID 4

Block level parity (minimum 3 disks): This mechanism provides an improved performance and fault tolerance, but with a dedicated parity disk rather than rotated parity strips. With the block-level striping, files can be distributed between multiple disks. Each disk operates independently which allows I/O requests to be performed in parallel, though data transfer speeds can suffer due to the type of parity. Error detection is enabled through dedicated parity and is stored in a separate, single disk unit.

### RAID 5

Stripped set (minimum 3 disks) with distributed parity. Distributed parity requires all but one drive to be present to operate; drive failure requires replacement, but the array is not destroyed by a single drive failure. Upon drive failure, any subsequent reads can be calculated from the distributed parity such that the drive failure is hidden from the end user. The array will have data loss in the event of a second drive failure and is vulnerable until the data that was on the failed drive is rebuilt onto a replacement drive.

Automatic rebuild is achieved for RAID5.

### RAID 6

Stripped set with dual distributed parity (minimum 4 disks). Provides fault tolerance from two drive failures; array continues to operate with up to two failed drives. This makes larger RAID groups more practical, especially for high availability systems. This becomes increasingly important because large-capacity drives lengthen the time needed to recover from the failure of a single drive. Single parity RAID levels are vulnerable to data loss until the failed drive is rebuilt: the larger the drive, the longer the rebuild will take. Dual parity gives time to rebuild the array without the data being at risk if one drive, but no more, fails before the rebuild is complete.